

Applicant will correct Figure 42 and/or amend the specification to obviate this objection upon formal allowance of the pending claims.

2. Claim Rejections

The Examiner rejected claims 4-9, 13-15 and 19-28 under 35 U.S.C. § 103(a) as being unpatentable over Takanashi et al., U.S. Patent No. 5,315,410 (“Takanashi”).

Applicants respectfully traverse this rejection.

The Examiner acknowledges that Takanashi does not disclose a photo-induced current that is dependent on the exposure quantity to allow the information to be recorded on the information recording medium. However, the examiner opines that because Takanashi also discloses that an electric field is applied and light is provided to the photosensitive layer, photo-induced currents are generated.

Applicants respectfully disagree. To establish a prima facie case of obviousness, the following basic conditions must be met: First, there must be some teaching, suggestion or motivation, either in the references themselves or in the general knowledge available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. MPEP §2143. Second, a prior art reference (or references when combined) must teach or suggest all the claim limitations. MPEP §2143. Applicants submit that none of these conditions are met.

As the Examiner acknowledges, Takanashi does not disclose a photo-induced current that is dependent on the exposure quantity to allow the information to be recorded on the information recording medium. Further, contrary to the Examiner’s assertion, none of the cited references, singularly or in combination, disclose that “when voltage is applied to said

photoelectric sensor after said photoelectric sensor has been exposed to light with no voltage applied thereto or voltage of opposite polarity applied thereto, a photo-induced current is generated," as required by pending independent claim 4. Accordingly, it would not be obvious that a photo-induced current is generated depending upon exposure quantity so that the information can be recorded on said information recording medium as claimed.

Further, as the Examiner acknowledged, the cited references do not disclose that "the exposed portion is made higher in conductivity than the unexposed portion even after the exposure of said photoelectric sensor to information light has been finished, and while said photoelectric sensor remains exposed to information light or after the exposure of said photoelectric sensor to information light has been finished, the application of voltage thereto is interrupted or voltage of opposite polarity is applied thereto, whereby the resulting conductivity is made equal to that obtained by the continued application of voltage," as required by pending independent claim 8.

The Examiner notes, however, that Takanashi discloses that the impedance of the photoconductive layer varies in accordance with the optical image of the object, so that the electric field applied to the photo-modulation layer depends on the optical image of the object and the application of the image-dependent electric field to the photo-modulation layer forms a charge latent image on the photo-modulation layer. Takanashi discloses that applied voltage time and amplitude may be varied as well. Thus, the Examiner opines that "it would have been obvious to make the exposed portion higher in conductivity than the unexposed portion and keep the exposed portion still higher in conductivity than the unexposed portion even after the exposure of the sensor to information light has been finished so that the charge is reliably

set in the recording medium.” Applicants respectfully disagree, and urge that not only does Takanashi fail to suggest the critical elements of the claimed invention, but that even if Takanashi’s disclosure that “the impedance of the photoconductive layer varies in accordance with the optical image of the object” was implemented, the present invention’s claimed objectives would not be met. Further, there is no suggestion in the cited references, taken singularly or in combination, that would cause one skilled in the art to find it “obvious to make the exposed portion higher in conductivity than the unexposed portion and keep the exposed portion still higher in conductivity than the unexposed portion even after the exposure of the sensor to information light has been finished so that the charge is reliably set in the recording medium.” Applicants believe that such a conclusion is merely impermissible hindsight.

Next, the Examiner states that it was well known to expose the sensor to information light or to apply voltage of opposite polarity after completing exposure of the sensor to information light, and to again apply the original voltage to make the resulting conductivity equal to that obtained by the continued application of voltage to optimize the performance of the device. However, Applicants believe that none of the cited references disclose the elements of method or the system claimed in the present application. Thus, Applicants respectfully suggest that based on the cited references, it would not be obvious to optimize performance by complying with the reciprocity law in view of the teaching in Takanashi of varying the applied voltage.

The Examiner further rejected claims 20, 24 and 25 under 35 U.S.C. § 103(a) as being unpatentable over Takanashi as applied above in view of Ando et al. U.S. Patent No.

4,692,779 and Shimizu et al. U.S. Patent No. 5,646,927. In the Examiner's view, it would have been obvious to use an electric field of 10^5 to 10^6 V/m and a current of 10^{-4} to 10^{-7} A/cm², as suggested by Ando (see col. 4, line 63 – col. 5, line 2) and Shimizu (see col. 26, lines 1-8), in the device of Takanashi. Applicants respectfully traverse this rejection.

However, as noted above, Takanashi fails to disclose the elements of the present invention, and so claims 20, 24 and 25 should be considered patentable. Further, while Ando discloses that the intensity of its electric field is in the order of "0.5-10 X 10^6 V/m, which corresponds to the order of $1.5-44 \times 10^{-5}$ coulomb/m² in terms of electric charges to be imparted," no where in Ando is it disclosed that "the photoelectric sensor is characterized in that when an electric field of 10^5 to 10^6 V/m is applied to said photoelectric sensor, a current passing through the unexposed portion has a current density of 10^{-4} to 10^{-7} A/cm²," as claimed. 10^{-4} to 10^{-7} A/cm² is equal to $1-10^{-3}$ A/m². As the Examiner will appreciate, the range of the current density in the present invention is different from that in Ando or Shimizu.

Accordingly, Applicants respectfully submit that all the submitted independent claims should be found patentable. Further, all dependent claims are also patentable for depending from allowable independent claims.

CONCLUSION

Based on the foregoing remarks, it is respectfully submitted that the claims as currently pending are patentable and in condition for allowance.

If any issues remain, or if the Examiner has any suggestions for expediting allowance of this application, he is respectfully requested to contact the undersigned at the

telephone number listed below.

Favorable consideration is respectfully requested.

AUTHORIZATION

The Commissioner is hereby authorized to charge any additional fees which may be required for this amendment, or credit any overpayment to Deposit Account No. 13-4500, Order No. 2122-4028. A DUPLICATE OF THIS DOCUMENT IS ATTACHED.

Respectfully submitted,

MORGAN & FINNEGAN, L.L.P.

Date: November 5, 2001

By: 

Arun Chandra
Registration No. 43,537

Correspondence Address

MORGAN & FINNEGAN, L.L.P.
345 Park Avenue
New York, New York 10154
(212) 758-4800
(212) 751-6849 (facsimile)